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Contents

120mm canister round moves forward

By Frank Altamura and Jack Crowley
Armaments Research, Development and Engineering Center

June 24 brought another milestone to the M1028 Integrated Product Team when it achieved type classification standard of the canister round.

The achievement follows closely their urgent release action, with rounds from early lots already headed to where they will do the most good.

The earlier significant accomplishment happened in 2004 when the IPT successfully reached its milestone C, Type Classification for Low Rate Production Review, and the recommendation for urgent release to deployed forces by the Materiel Release Acceptance Board.

The 120mm M1028 Canister, formerly the XM1028, product and core team were honored recently as being one of the top 10 Army inventions of 2004.

By Dec. 7, the M1028 documentation and performance had been reviewed by the staff of the Program Executive Officer for Ammunition. Then, the program's executive officer, Brig. Gen. Paul S. Izzo, was briefed by Frank Altamura, the Office of the Project Manager Maneuver Ammunition System's item manager, and key staff. Izzo then signed the milestone decision authority documentation, which granted authority for the program to move forward into low-rate initial production.

Shortly after milestone C was approved, two urgent fielding requests were received by OPM-MAS in support of Operation Iraqi Freedom. One request came from the Marine Corps. The second request came from Coalition Forces Land Component Command. The Coalition Forces UFR, approved by the G-3, was processed to respond to a request from the 1st Cavalry Division that was deployed to Iraq. The entire low-rate initial production lot is going to Iraq to support the current conflict.

Altamura said that in order to meet the urgent fielding requirement, "We were fortunate to have several existing components tested and available from other 120mm family of cartridges. The primer train, combustible cartridge case and reclaimed propellant all went 'into the mix.'

"We are also extremely pleased that the M1028 is the first 120mm tank round to be fully insensitive-munitions compliant as certified by the Army Insensitive Munitions Board," he added.

The M1028 has also demonstrated effectiveness against other targets. The cartridge has been successfully tested against vehicles, structure walls and for obstacle reduction capabilities. Lethality has even been demonstrated on targets behind these structures.

"The M1028 adds a really powerful tool for our tank crews and the troops they support. We will soon be able to more than 'honor' these types of threats; we'll be

Courtesy image
The modern 120mm M1028 is designed not for artillery, but for the Abrams tank in close battle.

able to effectively address them," said Lt. Col. Ken Tarcza, OPM MAS' product manager.

The Marine Corps had the opportunity to fire a handful of the M1028 rounds during their gunnery training exercise in February at Camp Lejeune, N.C., in preparation for re-deployment to Iraq. Feedback was that the rounds impressed the tankers as well as a battalion commander from the 2nd Marine Division and the commanding general of the 2nd Marine Division beyond their expectations.

"While our industry partners are generating the first lots of low-rate production, our partners at Fort Knox, Ky. and the ranges are speeding to develop the training, tactics and procedures needed to quickly field the M1028 to where it's needed," said Col. Mark Rider, PM MAS.

"As our ammunition support teams have gone into the [area of responsibility] to investigate what our Soldiers need most. Our Soldiers and their leaders are very excited about being able to add canister to their inventories — the quicker the better." Rider added.

AMSAA's SURVIVE Model plays key role

By Joyce Engle
U.S. Army Materiel Systems Analysis Activity, Armor/Infantry Branch

The U.S. Army Materiel Systems Analysis Activity, Armor/Infantry Branch is developing SURVIVE, an item-level performance model with a high-fidelity representation of survivability technologies. Lightweight systems place an increased emphasis on other-than-armor technologies, and AMSAA recognized a need for a tool to address the issues associated with these technologies.

SURVIVE is an item-level performance model focused on platform survivability. It represents the dynamics of an engagement and provides a higher fidelity representation of survivability than do force-on-force models. SURVIVE was developed to provide the ability to analyze interactions among different survivability technologies – both in terms of synergies and interference.

Currently, SURVIVE represents a selection of ground platforms in conditions where there is one target and one or more threats. It represents a large set of threats and survivability technologies, as well as maneuver and cued counterfire.

SURVIVE provides sufficient fidelity to represent the interactions among a set of countermeasures to conduct a wide variety of analyses, from assessments of the survivability of a given design , to trade-off analyses comparing the contribution of various components, to requirements analyses to determine how to optimize performance of a given countermeasure.

SURVIVE uses detailed survivability algorithms based on those developed by Tank Automotive Research Development Engineering Center, Warren, Mich. and what's now the countermeasures directorate at White Sands Missile Range, N.M. These provide greater detail than those in force-on-force and small-unit models. For many traditional areas, standard Army algorithms are used: ACQUIRE for target acquisition, standard delivery accuracy methodologies, and standard ballistic vulnerability model outputs.

The model can represent an extensive list of weapons, munitions, sensors, and countermeasures. These provide sufficient scope to address a broad range of current and future force survivability issues. One key element of survivability as the Army evolves is the idea of system-of-systems (SoS) survivability. SURVIVE can play a key role in analysis of SoS issues.

SURVIVE is currently a one-on-one or few-on-one model, and it will use data from the engineering models as input to evaluate platform survivability. Depending on the fidelity of the higher level models, it could be used to generate input data for those models. Its main application will be to support item-level survivability analysis, and in the future, small-unit survivability analysis.

The approach to conducting SoS analysis is to use force-on-force models to determine the likelihood of various types of encounters, then use SURVIVE to conduct detailed analyses of how best to survive those encounters.

Some potential applications of SURVIVE are: 1) addressing component-level trade-off issues, 2) tailoring a suite of survivability technologies to address a set of threats, 3) capturing the synergies of technologies, such as using Active Protection System as a back-up to a jammer, or identifying instances where technologies could interfere, such as using a jammer and smoke simultaneously, 4) addressing requirements for survivability components, looking in detail at the benefits of decreasing the response time of a warning receiver or increasing the slew rate of an APS, and 5) providing quick turn-around answers to questions raised from other analyses and examine the sensitivity of survivability to various design decisions, such as APS dead zones or areas with reduced armor protection.

AMSAA's extensive integrated Verification, Validation and Accreditation effort included the use of SURVIVE to conduct two separate analyses. The goals were to provide an assessment of the survivability of lightweight systems, and to address a key issue of interest to the Army.

The first analysis examined how well lightweight Army vehicles survived against a variety of threats. The characteristics of lightweight vehicles were run in SURVIVE to provide a snapshot of how well they survive.

The second analysis examined the survivability of lightweight vehicles against Rocket Propelled Grenades launched from close-in ranges. Characteristics of existing survivability components were varied to look at how to reduce response timelines, and to consider alternative technologies to protect against RPGs. Further sensitivity studies will be performed in fiscal year 2006.

It is expected that the next version of SURVIVE will be available to Army and Joint users in September 2006. Future enhancements will be driven by a configuration control board and a user's group will be formed in the near future as well.

CENTCOM commander visits Ground Vehicle Simulation Laboratory

By: Harry J. Zywiol, Jr. and Dr. David Gorsich
Tank Automotive Research, Development and Engineering Center

U.S. Army Tank Automotive Research, Development and Engineering Center's Ground Vehicle Simulation Laboratory hosted a very special visit by Gen. John Abizaid, U.S. Central Command commander in July.

Abizaid and his staff were accompanied by Maj. Gen. William Lenaers,TACOM Commander and other VIPs. The purpose of the visit was to display and demonstrate the modeling and simulation capabilities that have been used in support of recent safety improvements that have been made on the M1114 HMMWV. The partnering drivers behind this new safety initiative have been the PEO Combat Support and Combat Service Support and TARDEC.

Several HMMWV components and vehicles were on display. Featured was the new, armored M1114 HMMWV that is equipped with a number of new safety features. The PM for Tactical Vehicles, Col. Robert Groller, showed Abizaid samples of seat belt restraints and seats that have been considered for deployment. These seats and restraints were used in Soldier experiments in TARDEC's Ride Motion Simulator.

Additional demonstrations using the full vehicle motion simulators were performed for Gen. Abizaid. In these demos, a HMMWV mounted to the Crew Station Turret Motion Base Simulator and another one mounted to a tire coupled durability simulator were operated.

New lightweight howitzer delivered to warfighters

Armaments Research, Development and Engineering Center
Public Affairs Office Release

The military's new lightweight 155 mm howitzer took giant step forward when it was successfully fielded to the 3rd Battalion, 11th Marines, at Twentynine Palms, Calif., May 27.

This is the first unit to become operational with the new joint Army-Marine Corps weapon system. The program for the lightweight 155 mm howitzer is managed by a joint-service program office at Picatinny, N.J. The howitzer, also known as the M777, is manufactured by BAE Systems with final integration and assembly occurring at its Hattiesburg, Miss., facility. The M777 will replace all the Marine Corps' current M-198 towed howitzers and will be the artillery system for the Army's Stryker Brigade Combat Teams.

As the first ground-combat system to make extensive use of titanium in its major structures to trim weight, the howitzer is 7,000 pounds lighter than the weapon it replaces.

"The weight reduction improves transportability and mobility without impacting range or accuracy," said Joint Program Manager James Shields. He added that the system is compatible with the entire family of 155mm ammunition and will be compatible with the Excalibur precision munition when it becomes available in late 2006.

The new howitzer is transportable by the Marine Corps' MV-22 tilt-rotor aircraft, and two systems can be transported on the C-130. The initial 94 howitzers, which constitute the low-rate initial-production quantity, will be equipped with an optical fire-control system that will be upgraded to incorporate digital fire control during full-rate production. All the 495 full-rate production howitzers being manufactured for the Army and Marine Corps will be delivered with a fully integrated digital fire-control system. The system, which is also known as towed artillery digitization, was developed and is being manufactured by General Dynamics Armament and Technical Products of Burlington, Vt.

"The system underwent a successful joint-service operational test during October 2004 at Twentynine Palms," Shields said. "During the four-week test, nearly 12,000 artillery rounds were fired by four howitzers. The system demonstrated high reliability, met or exceeded all its operational requirements, and a team of independent evaluators determined the howitzer was both operationally suitable and effective."

The next unit to receive the lightweight 155 mm howitzer will be the Second Battalion, Eleventh Marines, at Camp Pendleton, Calif. They are scheduled to become operational with the howitzer in August.

TARDEC teams with industry for Capitol Hill demonstration

By Paul D. Mehney
Tank Automotive Research, Development and Engineering Center

The Tank Automotive Research, Development and Engineering, with its National Automotive Center, partnered with many automotive small businesses to quickly advance technology to the Warfighter.

At this summer's Soldier Modernization Day, held in the Senate Russell Building on Capitol Hill, Tank Research Development and Engineering Center collaborated to exhibit the latest in vehicle safety and survivability technology for Senate members and their staffs.

Troy, Mich., based JADI, Inc. demonstrated a developmental a portable chemical or biological detection system that has the potential of being deployed on small unmanned ground vehicles currently being used in Iraq and Afghanistan.

Attention from the senators and staff was paid to TARDEC's Full Spectrum Active Protection Close in Layered Shield an active protection system that will be capable of defeating rocket propelled grenades and small anti-tank guided missiles in close combat situations while on the move.

Senators and staff were not the only interested visitors, several constituents stopped by to see the latest military technology.

World War II veteran Logan Council, who served with the Army's Signal Corps during the 1943 Philippine operations, summed up the importance of technology for all Soldiers when he said, "There is a lot of new fangled technology out there now that we surely could have made use of. It's not easy being a Soldier during war; technology can make a big difference in troops' abilities."

TARDEC'S PAN TALON assists police department, bomb squad units

By Scott Sadlon and Paul D. Mehney
Tank Automotive Research, Development and Engineering Center

The U.S. Army's Tank Automotive Research, Development and Engineering Center today announced that five police departments across the country have begun using the TALON robot with new recoil Percussion Actuated Non-electric disrupter mount. Developed by the Army and designed for military use, these state-side Explosive Ordnance Disposal units have purchased the PAN-TALON to provide stand-off disruption capability for carrying out Homeland Security missions.

Police Departments in Boca Raton, West Palm Beach and Palm Beach, Fla.; El Paso, Texas and Los Angeles, Calif. are using the TALON with disruptor mount for bomb detection missions. Based on the success of this EOD tool in Operation Iraqi Freedom, 17 other police departments have either asked TARDEC for a PAN-TALON technology demonstration or are waiting for grant approvals to purchase the equipment.

"Any time a TARDEC-developed innovation transitions to the civilian world, it is a great accomplishment," said Dr. Richard McClelland, director of TARDEC. "The transition of the PAN mount is significant because it will directly impact the safety of those performing Homeland Security missions."

TARDEC, in association with Foster-Miller, Inc. (Waltham, Mass.) developed the recoil mitigating mount, which supports standard EOD PAN devices. Once the mount is fixed to a Small Unmanned Ground Vehicles, such as the TALON robot, police have the ability to defeat an Improvised Explosive Device remotely from a safe stand-off distance. Without disruptor-mounted TALON, EOD Soldiers must wear hot, heavy bomb suits to physically approach the device to deactivate with a tripod-mounted PAN disruptor.

To date, 17 PAN mounts have been fabricated and deployed to the Joint Robotics System Repair Station in Camp Victory, Iraq. As EOD users bring in their TALON for repairs and maintenance needs, they are issued a PAN mount for Soldier evaluation.

"The key benefit of the PAN disruptor mount is the ability to remotely diffuse an IED without exposing the operator to external threats or sustaining collateral damage within the area of the IED," explained Dave Kowachek, TARDEC program engineer. "Whether you are on a bridge or in urban terrain, the PAN disruptor will not cause any additional damage to the surrounding infrastructure."

TARDEC is headquartered at the Detroit Arsenal in Warren, Michigan and is located in the heart of the world's automotive capital. Part of the Army Materiel Command's Research, Development and Engineering Center, TARDEC is the nation's laboratory for advanced military automotive technology.

TARDEC's mission is to research, develop, engineer, leverage and integrate advanced technology into ground systems and support equipment. TARDEC's 1,100 associates develop and maintain vehicles for all US Armed Forces, numerous federal agencies and over 60 foreign countries.

TARDEC continually pushes the state-of-the-art in technology areas of Survivability, Mobility, Intelligent Systems and Maneuver Support and Sustainment-- making sure that they field robust equipment that meets the performance needs of the Soldier.

TERRORIST MODUS OPERANDI, POSSIBLE ATTACK SIGNATURES

By the RDECOM Physical Security/Antiterrorism Office

How does a terrorist operate? Ask yourself – what does it take to catch a terrorist? Do you know what to look for? Are the pieces of the puzzle there, but can't see the whole puzzle? Are we seeing the invisible? No matter where you live or work in the world, you can help by being aware of the terrorist's Modus of Operandi.

They are most likely to select political, military, and/or economic targets based on the following three criteria:

Targets that are recognized symbols of US life and power in the Muslim world.

Targets with mass casualties, that will spread fear and panic hurting US morale.

Targets whose destruction will negatively impact the US economy.

Potential targets that meet these key criteria can be "hard" targets such as key government buildings, military bases or soft targets such as bridges, commercial buildings, mass transit systems or key energy sector facilities.

A review of Al-Qaida's modus operandi suggests that the method(s) of attack will very likely be dictated by target selection. They will most likely opt for an attack method that has the highest probability of success, having made this determination based on security around a given target.

Al-Qaida's leadership encourages senior plotters and operatives to brainstorm and propose ideas based on previous operations, available operatives and open source reports. The group's use of commercial aircraft as missiles, with the use of shoes to conceal explosives and the use of vehicle-borne improvised explosive devices (VBIEDs) disguised as security vehicles are examples of the innovative methodologies they have applied to given targets and security situations.

On-the-Ground-Managers

These key individuals are the forward-deployed leaders of a given operation – most likely knowledgeable of all facts of the operation, including the intended targets, timing and methods of attack. Ideally, these operatives would have arrived at least a year before the planned attack and may not travel with other members of the team. They may have autonomy to change both targets and timing of the operation if the situation on the ground dictates.

Operational Foot Soldiers

Due to heightened security since 9/11, the muscle of a given operation may now be chosen by field planners, if secure communication or access to senior leadership is not available. To safe guard the operation, attack operatives would most likely be told only as much as needed about a terrorist operation and may not know the exact details until the moment of execution.

Depending on the operation, they may not enter the target country until it is absolutely necessary to decrease chances of compromise. In addition, muscle operatives while possibly traveling together in small groups would most likely travel in a staggered fashion to avoid suspicious patterns that could raise their profile or risk being detained.

Expected Behavior of Operatives

They are expected to behave in certain ways to reduce their profile and avoid drawing attention to the authorities; they can make mistakes and may not adhere to strict operational instructions. They are told to live close to their cover as possible. Blend in.

They should not live near the target due to security precautions and should avoid contact with anyone, including Arabs and Muslims, outside their immediate operation group. They are instructed to pray quietly at home and not openly and should generally downplay their religion. To further minimize contact, they are instructed to only acquire jobs if appropriate for their cover.

Timing of the Attack

Determining the precise day or time of the attack is extremely difficult, they will very likely have autonomy to select the optimum time. External facts (weather and increase security posture) may alter their decisions in the final stages.

They may time their attacks with anniversary dates of previous attacks or other symbolic occasions, but the most important fact appears to be operational readiness and probability of success

Procuring Weapons

Explosives and precursors would be acquired in a non alerting manner a month or more in advance and in small amounts from the lowest source or distribution in order to limit possible alerting the authorities. Vehicle(s) used in an attack would be purchased weeks to months before the actual attack date to test its functionality and load capacity.

Stealing a vehicle to be used in an attack is discouraged because of the unnecessary risk of exposure. Buying will allow more control over the situation and leave a limited trail for the authorities to follow. They will rely on a private enclosed space to build the explosive device such as garages, storage units, rented or abandoned warehouses. Be alert!!

Remember report suspicious activity immediately by contacting the installation law enforcement activity on post or your local police agency off post. RDECOM employees can call (410) 436-2222 to report suspicious activities. To report in Harford County call (410) 836-7788 and state-wide 1-800-492-8477.

Portable Fuel Cell Technology for Soldier Power

By Nicholas Sifer
Communications–Electronics Research Development and Engineering Center Fuel Cell Technology Team

The Communications-Electronics Research, Development, and Engineering Center's Army Power Division has initiated work on the development of a 25 Watt reformed methanol fuel cell for use as a Soldier power device. Prototype units will be manufactured by UltraCell Corporation of Livermore, Calif.

The UltraCell fuel cell prototype, dubbed the XY90, will reduce the overall weight that Soldiers must currently carry for multi-day missions. The units are being developed under the Army CERDEC Future Force Power ATO and are intended to undergo early field testing for the PEO-Soldier Land Warrior program. CERDEC anticipates that the fuel cell units will be at a minimum Technology Readiness Level of 6 by early 2006 in order to support the planned testing.

Fuel cell systems like the XY90 convert the direct energy of a fuel, such as methanol, into electric energy. Unlike a battery, fuel can be continuously supplied via external cartridges. Fuel cells offer the potential for reduced weight and long runtimes and are being pursued in the commercial sector for portable consumer electronics such as cell phones and laptops.

New power and energy technologies are critical in helping the Army achieve its plan to digitize the battlefield. The average dismounted Soldier's power demand has increased by a factor of 10 over the past century and is expected to increase by another factor of 10 within the next few years.

While power management technologies are serving to control power consumption in devices like wireless computers, Global Positioning System and radio devices, long lasting, lightweight power devices like fuel cells will still be needed to reduce mission weight while maintaining current reliability and safety standards.

The Army Power Division's Fuel Cell Technology Team, located at Fort Belvoir, Va., continues to develop and monitor cutting-edge fuel cell technology for potential transition into programs such as Land Warrior and the future Ground Soldier System under PEO-Soldier.

The team has recently expanded its laboratory facilities on Fort Belvoir in order to increase its testing capabilities while providing additional test benches for a variety of systems to be delivered in 2005.

U.S. Army develops segmented band track

By Jason Alef
Tank Automotive Research Development and Engineering Center

In July 2004, the PM FCS Manned Ground Vehicle challenged The Tank Automotive Research, Development and Engineering Center with the development of a segmented band track system that will combine the lightweight, low vibration and acoustic emission advantages of the continuous band track technology with the field supportability advantages of a conventional linked track system.

The continuous band track technology offered a dramatic weight reduction over comparable steel tracks, plus quiet operation, low vibration, reduced fuel consumption, little to no crew maintenance, and a reduced infra-red signature. However, despite all of these advantages the continuous band track technology possessed a critical shortcoming – difficult field supportability.

Tests have verified that in order to change a continuous band track in the field four crew members, a forklift, and a method to elevate one side of the vehicle are required. TARDEC's Track and Suspension Team in Warren, Mich., has partnered with Concurrent Technologies Corporation in Johnstown, Pa., to develop a new, lightweight segmented band track technology.

The segmented band track technology will combine the attributes of the continuous band track technology with the field supportability and robust survivability characteristics of the conventional linked track technology.

The addition of a number of joints with the track loop, allows soldiers to change out damaged sections of band track rather than having to replace the entire track. In addition, the logistic impact of transporting and storing smaller segments rather than entire rolls of track is desirable.

The segmented band track effort is being tailored to meet the current FCS MGV requirements, but is not limited to that application. The segmented band track technology could be scaled to operate on a M2, M113, or a tracked robotic vehicle application.

Segmented band track production will coincide with vehicle production of the FCS MGV, in 2014. For more information please contact Jason Alef, jason.alef@us.army.mil, (586) 574-6376.

ARL NASA-GLENN employees help bring Space Shuttle home safe

By Michael Fluharty
Army Research Lab Public Affairs

Without question, Army Research Laboratory employees Bob Handschuh and Tim Krantz will watch the Discovery space shuttle flight with decidedly more interest than their ARL colleagues.

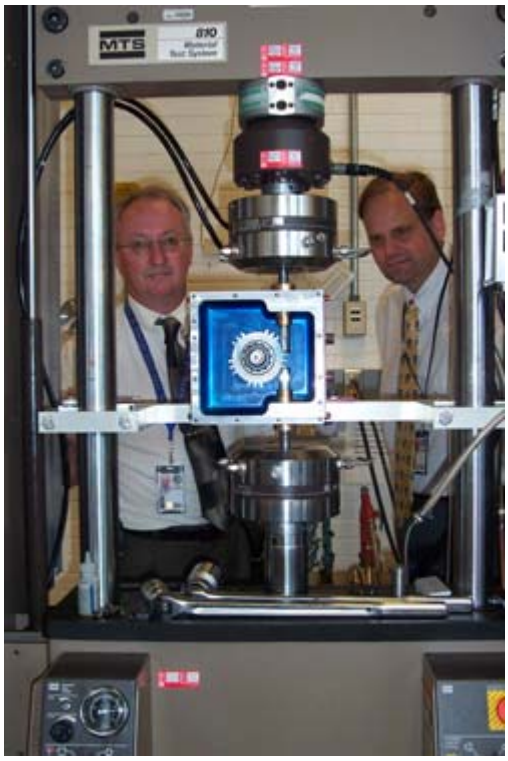
That's because the Vehicle Technology Directorate employees, based at the NASA Glenn facility outside Cleveland, have more than a passing interest -- they helped evaluate the safety of actuators that control the shuttle's rudder speed brake.

Located in the orbiter's tail assembly, the rudder steers the orbiter and serves as a brake to slow it down during landing. Gears are a critical component of the shuttle's complex actuator-rudder system. There are more than 300 gears in the shuttle's actuator rudder system, compared to perhaps only 15 to 25 in a helicopter's. And shuttle gears are exposed to a much greater force than those in traditional aircraft.

Handschuh and Krantz are aerospace engineers, assigned to Glenn's Mechanical Components Branch. For the shuttle project, they collaborated with NASA Glenn Fatigue Laboratory. Because the two had worked primarily on helicopter drive systems, both men were surprised when they learned they would be working on the space shuttle.

"I've been here 15 - 16 years and hadn't worked on any shuttle-related issues," Krantz recently told West Life, a local newspaper.

According to Handschuh, their involvement in the NASA project is an excellent example of how to apply aeronautics technology to space applications. The long-time ARL employee says his group has been working on gearing and gear-related issues for decades.



Bob Handschuh and Tim Krantz, ARL employees working at NASA Glenn, test the durability of gears used on the space shuttle. The complex shuttle has some 300 gears in its actuator rudder system, which is used to guide and brake the shuttle during landing. (Photo courtesy of Kevin Kelley, West Life news.)

An actuator test unit had survived a laboratory test simulating 100 missions, the expected life of a shuttle. However, when the actuators were disassembled after 30 missions, the lubricant was discolored and apparently contaminated. Many gears had signs of wear or other damage.

"There wasn't a maintenance program for these components," according to Handschuh. "Previously, the thinking was they would be usable for the life of the shuttle."

Failure of the rudder speed brake actuator could be catastrophic. "You would not be able to steer the vehicle back to the runway," Krantz said. As part of the investigation, the engineers used a special computer code for gears that was developed via an ARL SBIR program. The analysis results helped resolve safety concerns.

Because of the group's findings, all Discovery actuators have either been refurbished or replaced, and a maintenance program has been established. Both engineers are proud to be part of NASA's "Return To Flight" effort.

"I'm happy lend our expertise," Handschuh said. "We've established credibility for our group to even do more work in the space area in the future," adding the group's knowledge of gears in the future could be applied to other space vehicles and exploratory rovers.

ARL researcher part of USDA-Recognized Team

By Paul Schmitt
Amy Research Lab Public Affairs Office

A collaborative outreach program, co-sponsored by the Army Research Laboratory, recently received the 2005 Civil Rights Award at the headquarters of the U.S. Department of Agriculture.

Dr. Grayson CuQlock-Knopp, a research psychologist with ARL's Human Research and Engineering Directorate was part of a large team honored by USDA. The award noted the guidance provided to the USDA Food and Nutrition Summer Institute, a program which gathers students to research current topics in food and nutrition.

CuQlock-Knopp described the program as "a good experience overall. It was great to see a diverse group of students from all over the country come together to do research."

The student group included faculty and student participation from several Historically Black Colleges and Universities – Howard University, Morgan State, Southern A&M, University of Arkansas at Pine Bluff, Alabama A&M, Tuskegee, Alcorn State, North Carolina Central, and one Tribal College, Salish Kootenai.

The students came to the Washington area for a week and toured USDA's Beltsville facilities, where they received training on how to conduct their research. They were also given the opportunity to meet with members of Congress, and received a tour of ARL's HRED facilities at Aberdeen Proving Ground. Following their week in the Washington area, they returned to their colleges to conduct research in nearby neighborhoods.

The research called for the students to provide data from various areas in the United States. The students' plan was two fold: first, document the barriers to adequate nutrition and physical fitness in inner city and rural, low income communities; and second, conduct basic research to determine the various dietary components that lead to obesity and Type II diabetes.

Throughout a one-year period, students either completed research that examined the nutritional components to the development of diabetes in rats, or surveyed food outlets and physical fitness locations to determine the availability of items on USDA checklists. Monthly teleconferences were held among faculty, students, and the government sponsors.

While the experience was extremely fulfilling for the students, CuQlock-Knopp added that the nature of the research, and the findings of the students, was a bit sobering. "It was kind of sad to hear the results," she noted. "The students discovered that many people in some areas are challenged by barriers that prevent them from both maintaining a proper diet and finding opportunities to exercise."

Fortunately, the work of these students will have long-term effects. Data were incorporated into the USDA's Community Nutrition Mapping Project for use by policy maker, educators, researchers and government officials for designing intervention strategies to enhance nutritional health in various communities.

CERDEC serves as part of winning team

Desiree DiAngelo
Communications–Electronics Research Development and Engineering Center Public Affairs

What does the Communications - Electronics Research, Development and Engineering Center, marina pollution, and eighth graders have in common? They are all part of winning team in the eCybermission competition.

Team Ocean Raves from Saint Dominic's elementary school in Brick, NJ was chosen as the eighth grade regional and national winners for the Army sponsored competition.

eCybermission was created in 2000 by then Army Chief of Staff, Gen. Eric K. Shinseki, with the goal of renewing interest in the areas of math, science and engineering. The web based competition draws national contestants from grades six through nine, competing for both regional and national awards. Students propose a solution for a real problem within their community and are challenged to explore how science, math and technology work together to solve it.

After winning the regional, the team had the opportunity to visit CERDEC, present their project, host a question and answer session and were presented with plaques in recognition for their accomplishments. This was the first time a team was brought in to showcase their presentation, and it proved to be a success.

"We reached out as a government agency, and if we are serious about maintaining our technological edge, we need to invest in the future, and eCybermission is a great example of that important investment," remarked Dr. Constella Hines Zimmerman, program director for the Integrated Community Outreach Network.

In addition to the visit, the students had the chance to team up with a CERDEC employee, Associate Director for Systems Engineering Bob Zanzalari, to help prepare them for the national competition. In the past employees have only served as judges, making Zanzalari the first to volunteer his time as a mentor.

"It was an extremely rewarding experience to work with the students. They were enthusiastic and were interested in my advice and guidance," remarked Zanzalari, who advised the team on several occasions. I worked with them on many aspects of the project, basically assisting them on over arching presentation," he added.

The team focused their research on marina pollution, specifically testing the waters of the Metedeconk River. The data revealed that the water was indeed polluted and contained an alarmingly low level of nitrates which assist in water flow and purity. The team presented their findings to local city officials and developed a brochure educating the community about their role in water pollution.

Within his role, Zanzalari helped the team articulate their data and results, and offered guidance and techniques for their presentation. "The experience for both the team and I was a positive one, and I look forward to future involvement in a mentor position," he remarked.

The one on one guidance proved to be a success. As the momnouth and ocean county ambassador for the competition, Zimmerman plans on continuing to bring teams to CERDEC, affording them the opportunity to showcase their presentations and receive guidance from a mentor.

“This is what CERDEC is all about; making opportunities for young people,” she remarked. “We help open doors, and in turn students work incredibly hard. We look forward to continuing our work with future teams, because it really makes a difference,” she added.

Joanne Arnold, the team advisor was equally satisfied with the CERDEC’s and ICON’s involvement, them on their efforts,” their support was immense, and the students truly benefited,” she remarked. “I intend to continue to seed into the expertise of the Fort Monmouth community,” she added.

Bornstein recognized as association's 'Member of the Year'

By Dave Davison
Army Research Lab Public Affairs


Dr. Jon Bornstein

An employee with the Weapons and Materials Directorate, Army Research Laboratory, was named member of the year for the 2005 Association of Unmanned Vehicle Systems.

Dr. Jon Bornstein, was awarded the award which is presented to an exceptionally dedicated AUVSI member who has made a significant contribution to the objectives of AUVSI through major efforts and/or outstanding performance.

Bornstein currently serves as the deputy program manager for the Army Research Laboratory's robotics research program and deputy collaborative alliance manager for the Robotics Collaborative Technology Alliance with both technical and programmatic responsibilities. The program is providing key perception, control, and human-robot interface technology for the Army's Future Combat Systems program and Joint Service robotics efforts.

From 1995 through 1996 he served as a program manager at the Defense Advanced Research Projects Agency with responsibility for the Demo II Unmanned Ground Vehicle Program. He has been active in AUVSI for more than five years, serving as a member of the Annual Symposium Technical Committee and was recently elected to serve on the AUVSI Board of Trustees.

Bornstein received his PhD. in Aeronautics and Astronautics from the Polytechnic Institute of New York in 1976. From 1975 through 1985 he was a member of the Fluid Mechanics Group at the Corporate Research Labs of Brown, Boveri & Cie, AG in Baden, Switzerland. In 1985, he joined the Fluid Physics Branch of the U.S. Army Ballistics Research Laboratory conducting research in projectile launch dynamics.

With the formation of the Army Research Laboratory in 1992, his technical focus shifted from dynamics to weapons systems and ultimately robotics technology. He received an Army Research & Development Achievement Award in 1989, Army Superior Civilian Service Award in 1997, and is a registered Professional Engineer in Maryland.

AUVSI is the world's largest non-profit organization devoted exclusively to advancing the unmanned systems community. With members from government organizations, industry and academia, AUVSI is committed to fostering, developing, and promoting unmanned systems and related technologies.

ECBC International Programs Division chief wins prestigious award

Edgewood Biological and Chemical Center Public Affairs Office

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Joseph Zarzycki, Technical Director of ECBC, presents Dr. George Famini with the AMC Personnel of the Year Award (ECBC Courtesy photo)

Dr. George Famini, International Programs Division Chief of the Edgewood Chemical Biological Center has been honored by the U.S. Army Materiel Command by being named one of the Ten Outstanding AMC Personnel of the Year. Famini received the award in a ceremony held July 25 at ECBC's offices on the Aberdeen Proving Grounds, Edgewood, Md.

This prestigious award recognizes outstanding work accomplishments that not only have been highly exemplary and an inspiration to others, but has significantly contributed to the Command's missions and operational responsibilities. In addition, it identifies and recognizes AMC personnel who, in the daily performance of their assigned duties, have come to stand out as model workers among their fellow employees, and could be considered a representative of the ideal AMC employee.

Famini was recognized for his role involving directing, developing, and overseeing international cooperative activities. Famini has been instrumental in establishing formal laboratory-to-laboratory collaborations with key allies in Asia, North America, and Europe.

Famini has actively supported cooperative initiatives within the North Atlantic Treaty Organization by engaging key allies through bilateral discussions and exchanges. In particular, a new formal relationship has been established with Norway and another reestablished with Poland. ECBC was the first Army laboratory to hold formal exchanges with Poland; this extension represents a successful 10 year relationship.

Famini's renowned knowledge and outstanding management skills have ensured the success of several multinational standardizations and cooperative research and development programs.

He had dedicated himself to keeping Army research labs integrated into the global CB defense community to ensure that our warfighters have access to the very best technologies available worldwide.

ARL researcher picked as 'role Model' for Hispanic engineers

By Dave Davison
Army Research Lab Public Affairs

Dr. Arturo Revilla

Dr. Arturo Revilla, a computer engineer for the Survivability, Lethality and Analysis Directorate at White Sands Missile Range, N.M., has been named "Role Model of the Week" for the week of July 18 by the Hispanic Engineer National Achievement Awards Corp.

Revilla was selected because he is an "excellent role model within the engineering, science and technology community," according to Kristina M. Ruidas, HENAAC communications coordinator.

The HENAAC Role Model of the Week is a weekly feature on www.henaac.org that highlights world class Hispanic engineers, scientists, and technology professionals from across the employment spectrum. Role models are selected from the hundreds of nominees submitted for the annual HENAAC awards.

Previously, Revilla was one of 23 chosen for the 2004 Luminary Honoree Program by HENAAC. The luminaries chosen for this award represent the top Hispanic professionals in engineering, science, and technology.

He offers the following words of advice for those starting out in the technical and science career fields.

"Always work for the things that you want with the passion they require," Revilla offered for those starting out in the technical and science career fields.

"In our world today, technology and science are leading the way to our future and what better opportunity could one ask for than to work in a field that pushes those boundaries? I believe that if one has the desire to succeed, it doesn't matter where you come from or where you have been, all that matters is what you do with the opportunities you have, he said."

Revilla is responsible for the research and development of information technologies and methodologies supporting the Army information operations vulnerability/ survivability assessment program, and has developed several automated tools and technologies which have increased the efficiency of the IOVSA process.

He has led several vulnerability assessments for major Army initiatives such as Future Combat Systems, Software Blocking and Army Battle Command Systems.

Revilla has both Bachelor and Master of Science degrees in electrical engineering from the University of Texas at El Paso. He also has a Ph.D. in computer engineering from the same university. Prior to attending college and working at ARL, he served in the Army for three years as a medical laboratory technician at Fort Campbell, Ky. and worked at the Jet Propulsion Laboratory in Pasadena, Calif.

Prior to attending college and working at ARL, he served in the Army for three years as a medical laboratory technician at Fort Campbell, Ky. and worked at the Jet Propulsion Laboratory in Pasadena, Calif.

HENAAC Inc. was established in 1989 as a means of identifying, honoring, and documenting the contributions of outstanding Hispanic-American science, engineering, technology and math professionals.

Lab leader, business liaison promote homeland security

By Joanne Coale
Edgewood Biological and Chemical Center Public Affairs Office

Monica Heyl and Rich Dimmick discuss their career paths from soldiers to civilians.

Monica Heyl and Rich Dimmick began their careers as soldiers stationed at the Aberdeen Proving Ground (Edgewood Area) in the early 1970s. Heyl is now the Leader of the Mobile Laboratories and Kits Team at the U.S. Army Edgewood Chemical Biological Center while Dimmick transfers defense technology at the U.S. Army Research Laboratory.

Dimmick serves as a liaison to the APG Business Development Office (BDO), which helps companies access the U.S. Army's leading scientists, technicians, instructors, and analysts in more than 50 major organizations covering over 72,000 acres of instrumented test ranges and laboratories at the Aberdeen Proving Ground.

There are a number of methods that can be used by industry and other government agencies to partner with the Army's specialists or to use the Army's facilities, including Interagency Agreements, Memorandums of Understanding, Cooperative Research and Development Agreements, Testing Services Agreements, and Patent Licensing Agreements.

Over the past 10 years, Heyl has used several of these arrangements to partner with other Federal agencies to include the FBI, Food and Drug Administration, and the Department of Homeland Security. In fact, she was one of the winners of the 2003 Federal Laboratory Consortium's Excellence in Technology Transfer Award, which cited, "the compilation of technologies Heyl has integrated directly increases public safety, supporting Federal and local first responders; providing protection of industrial trade secrets; and enhances law enforcement efforts to protect our country against terrorism and the threat of weapons of mass destruction."

Although their careers have followed different paths since the 1970s, both Heyl and Dimmick have promoted technology transfer for homeland defense, homeland security, and the first responders.

Bronze Star awarded to chief of staff

The Soldier Systems Center chief of staff was awarded the Bronze Star in a ceremony at the Conference Center July 12 for his meritorious service in Iraq from January 2004-October 2004.

Lt. Col. Andrew MacDonald led a team of military and civilians for the Program Executive Office Soldier (PEO Soldier) Rapid Fielding Initiative, which brought more than 40 individual equipment items to nearly 90,000 troops across Iraq.

"I can't tell you how many Soldiers are alive today because of his efforts," said Brig. Gen. James Moran, installation commanding general.

MacDonald said he was grateful for the opportunity to serve and the support to do his job.

"It's a great team effort. (The Rapid Fielding Initiative) was probably the greatest thing. It showed the Soldiers that the Army cared about them," he said. "It was a pretty miserable place, but the effort was worth it."

For more information about PEO Soldier or the U.S. Army Soldier Systems Center, please visit the websites: https://peosoldier.army.mil and http://www.natick.army.mil.